Weather Briefing for 20050617

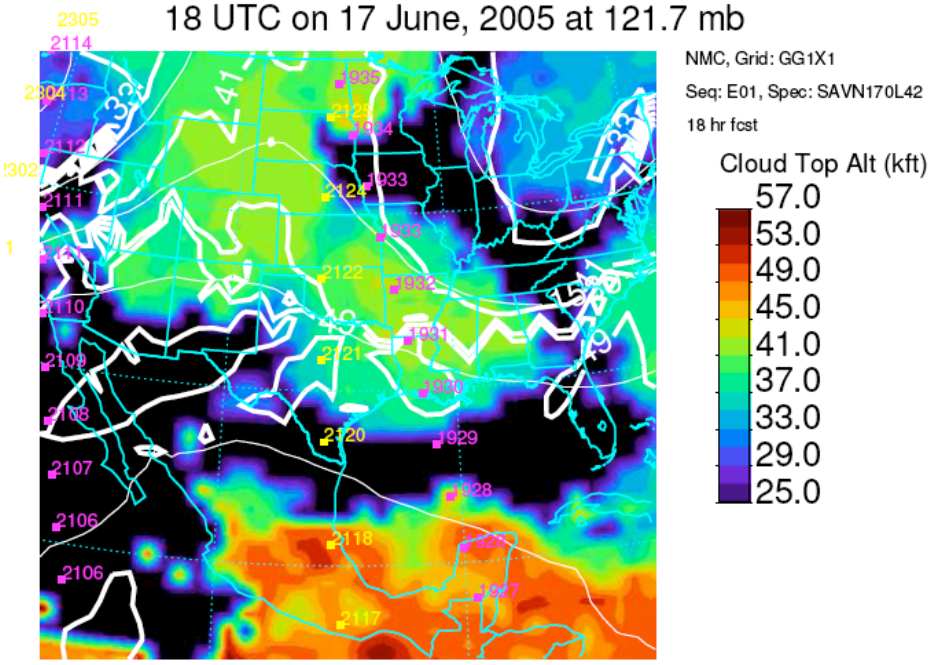
The immediate forecast issue for today are: (1) clouds along the HIRDLS flight track and (2) surface conditions for today. Currently (12UT) a large mesoscale convective system is over Oklahoma, moving southeastward. An obvious outflow is spreading westward and northward, stimulating the development of smaller systems at the KS/NB border and in northwestern, non-panhandle OK. All this stuff is moving eastward or southeastward. The basic picture is that the most severe weather will be well to the E or SE by the time the aircraft takes off, but some models (ETA and versions of the RUC) indicate lingering convective activity over western OK (ETA) or west central KS (WRF RUC). The operational RUC has nothing over this region. I am inclined to agree with the Storm Prediction Center, which points out that heights and temperatures are rising at 500 mb in western TX, OK, and NM, reducing the chances for convective activity. Bottom line is that I think we should be alright.

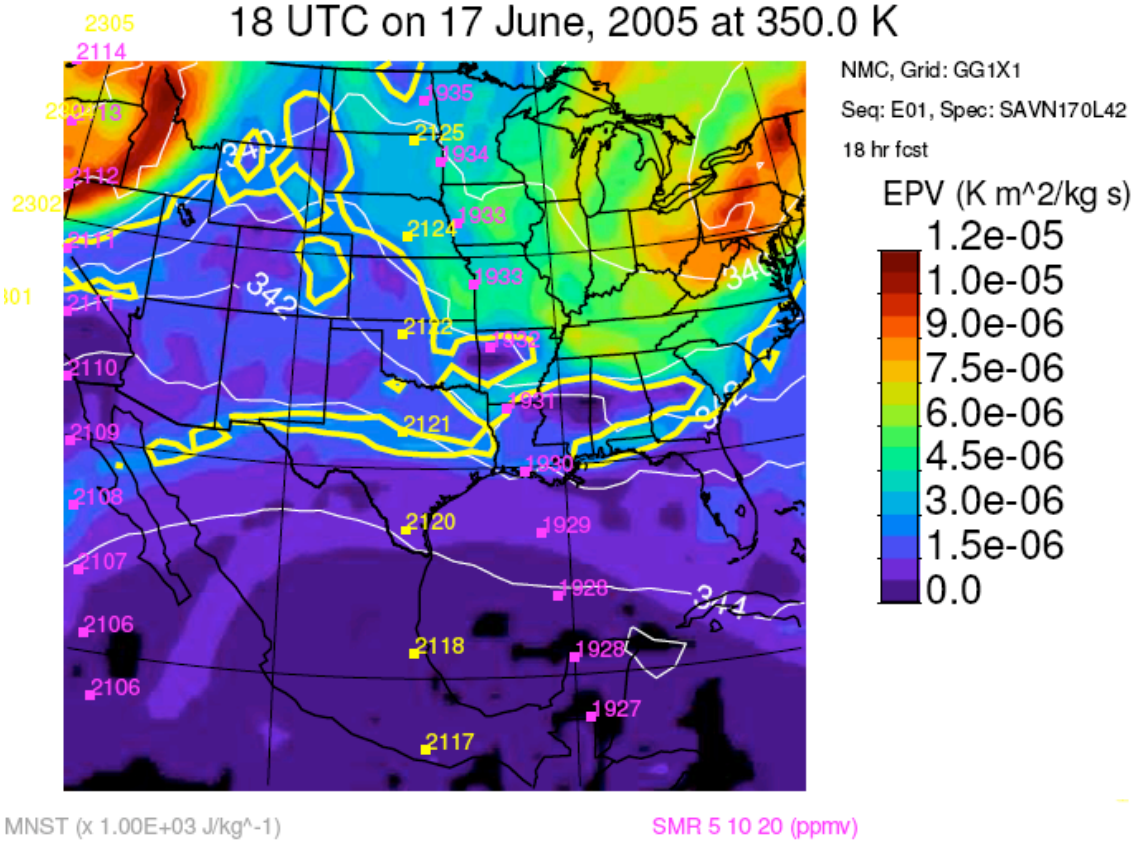
Regarding today's surface weather, we have been talking about MCS development propagating NW to SE in a path that would be passing northeast of us for a few days, and that is in fact happening. The major rain will probably miss us and hit SW Louisiana, so showers and thunderstorms today will be in the afternoon and will be isolated. The soundings have also gotten progressively less unstable since Wednesday (lower CAPE).

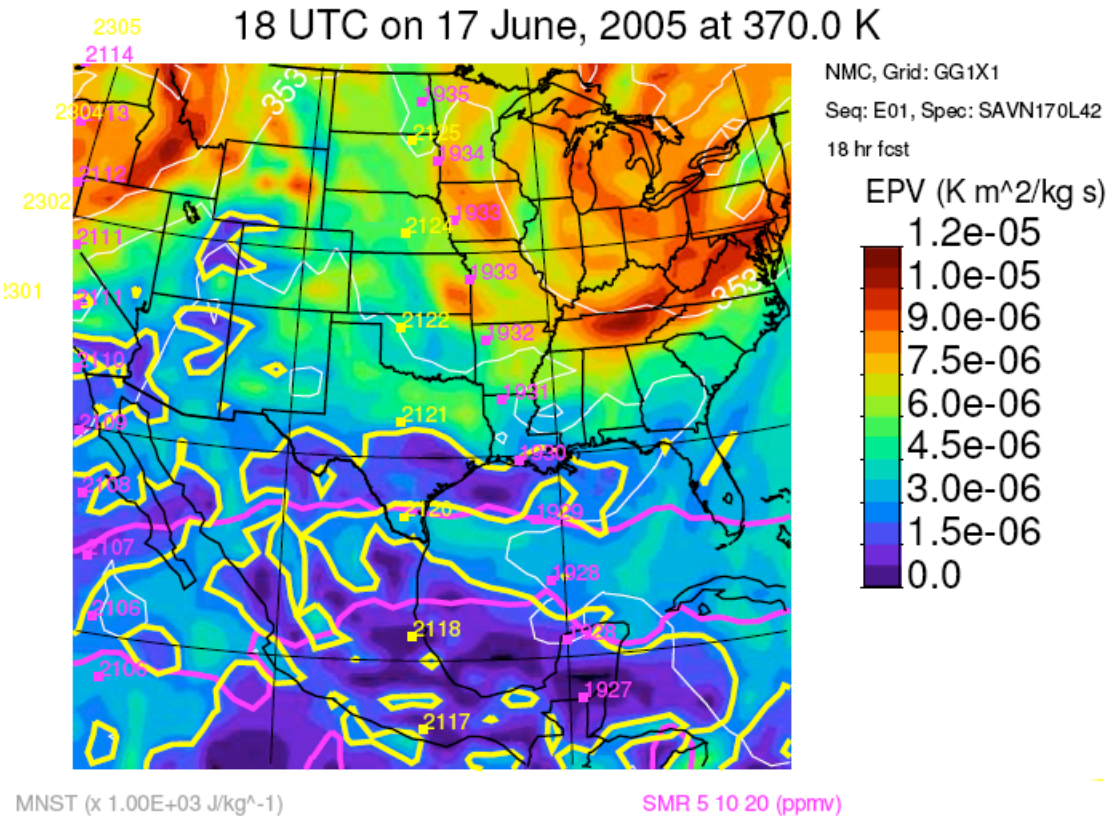
The longer term outlook shows the 500 mb ridge building over central Texas, and developing a tilt so that by Sunday it extends from Texas northeastward to Lake Superior. This pattern will continue into Tuesday. Some disturbances come down the ridge, but they are not likely to penetrate far enough west to affect us. The official forecast has no rain through Tuesday. Boundary layer winds will be from the south today and Sunday, rotating to the east by Tuesday.

Science:

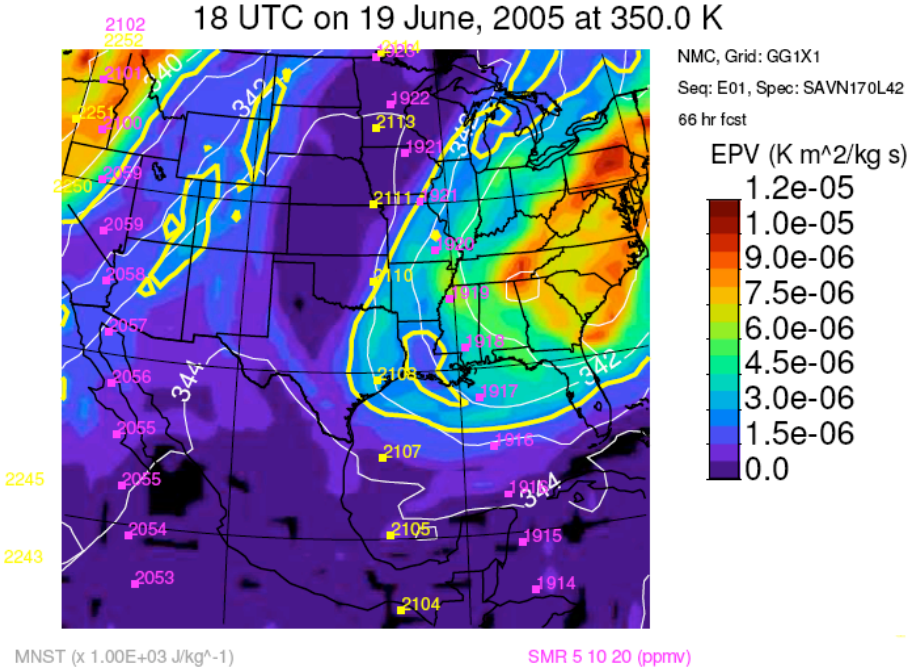
Today's flight: We should be able to get contrasting air masses as we fly along the yellow HIRDLS track in the following diagrams. Some cirrus is expected at the northern end, but the chances of heavy convective activity are small (but nonzero).

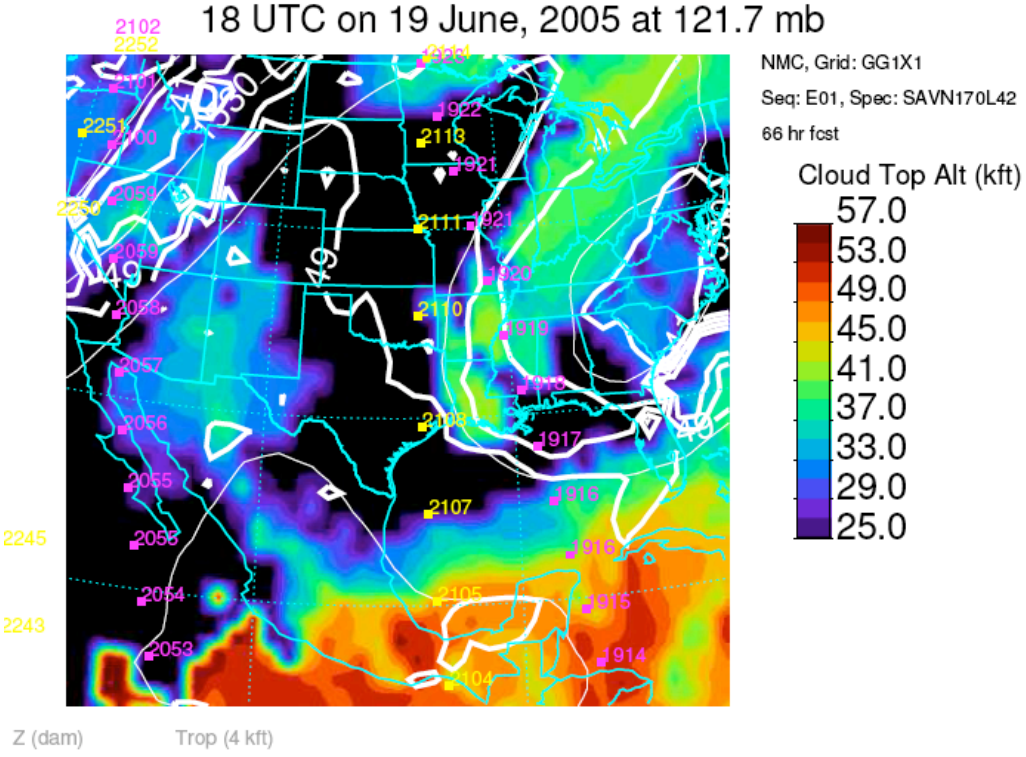

18 UTC on 17 June, 2005 at 121.7 mb
NMC, Grid: GG1X1
Seq: E01, Spec: SAVN170L42
18 hr fcst
Cloud Top Alt (kft)
57.0
53.0
49.0
45.0
41.0
37.0
33.0
29.0
25.0
(dam)
Trop (4 kft)


18 UTC on 17 June, 2005 at 350.0 K
NMC, Grid: GG1X1
Seq: E01, Spec: SAVN170L42
18 hr fcst
EPV (K m^2/kg s)
1.2e-05
1.0e-05
9.0e-06
7.5e-06
6.0e-06
4.5e-06
3.0e-06
1.5e-06
0.0
MNST (x 1.00E+03 J/kg^-1)
SMR 5 10 20 (ppmv)



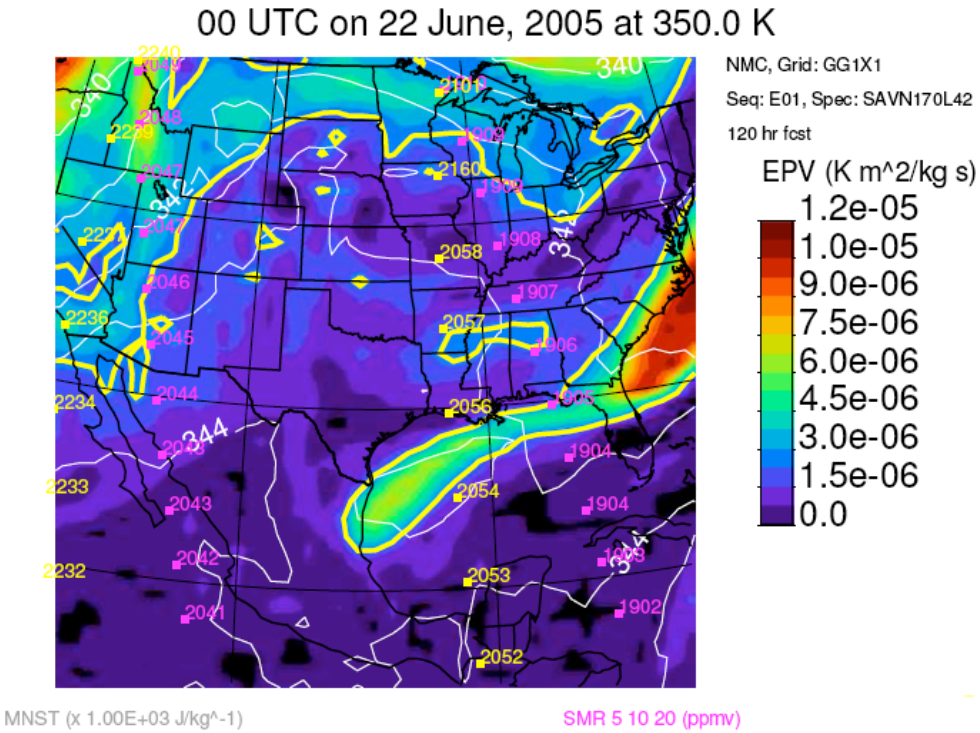
Sunday's flight: Generally cloud free, except for the tropical end of the HIRDLS track and some minor stuff from small disturbances propagating southward along the eastern side of the ridge. The last tropical cloud forecast (Wednesday) was somewhat overdone, especially on the positioning. We should revisit this as we plan this flight. The patterns look interesting, with an opportunity to penetrate the lobe of PV on both sides. This lobe, though, has moved south (good) and east (bad) relative to previous model runs. Surface winds from the south, with minimal cloud cover over Houston (not shown), so a good air pollution opportunity.



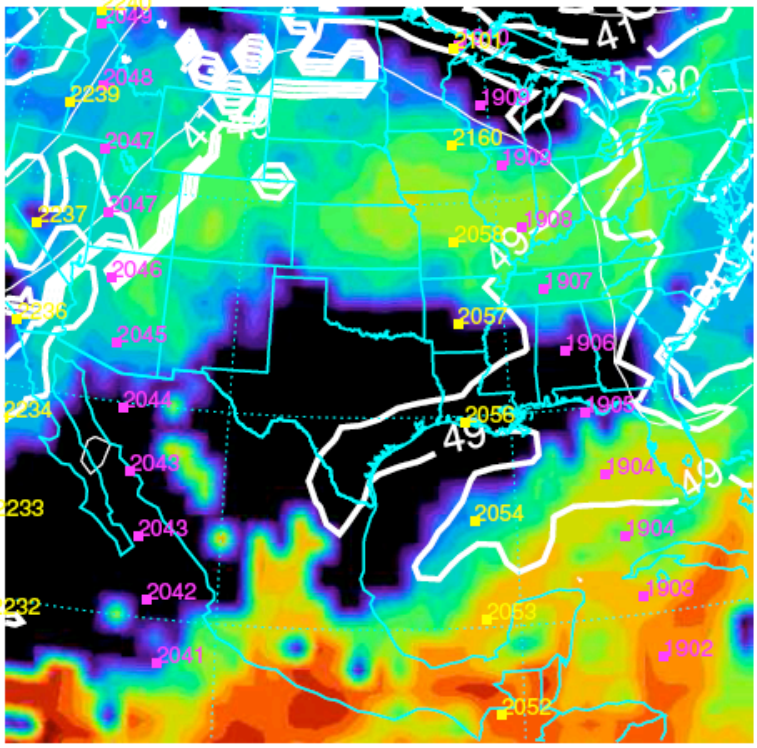


Tuesday's flight: A streamer of PV pokes southwestward south of us. Further south, there are tropical cloud banks, with significant clouds well to the north. The northern

clouds look to be mostly cirrus (though thick) rather than convective. A little early to be firm on the details.



00 UTC on 22 June, 2005 at 121.7 mb



NMC, Grid: GG1X1

Seq: E01, Spec: SAVN170L42

120 hr fcst

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(dam) Trop (4 kft)